

ABSTRACT OF THE DISCLOSURE

An input digital signal is periodically and alternately subjected to first modulation and second modulation, being thereby converted into a pair of a baseband I signal and a baseband Q signal. The first 5 modulation and the second modulation are different from each other. The pair of the baseband I signal and the baseband Q signal are outputted. The first modulation may be at least 8-signal-point modulation while the second modulation may be phase shift keying.